

REMARKS

Claims 10-16 and 18-20 are pending. Claim 13 has been amended. No new matter has been added.

Claim 13 was objected to due to an informality. Applicants thank the Examiner for the helpful suggestion in amending claim 13. In light of the foregoing amendment, Applicants request that this objection be withdrawn.

Claims 10-16 and 18-20 were rejected under 35 USC 103(a) as being unpatentable over Nishikawa, JP06097656A in view of Sato et al., U.S. Patent 4,882,455, Polinski, U.S. Patent 5,708,570 and Lin et al., U.S. Patent 5,242,867. This rejection is respectfully traversed.

The Examiner asserts that Nishikawa teaches everything except forming the electrodes from a metal foil as opposed to a conductive paste, and that the first and second green sheets have substantially identical coefficients of expansion (of for example between 6 and 7 ppm/K).

The Examiner relies on Sato as teaching forming electrodes from a metal foil since Sato teaches that it is known to form electrodes from metal foils, conductive metal pastes and a combination thereof, and only the expected results would be achieved. Further, the Examiner asserts that one of ordinary skill in the art at the time the invention was made would have readily appreciated using Nishikawa as modified by Sato to provide green layers having substantially identical coefficients of expansion as was well known in the art and shown for example by Polinski to ensure the layer stack does not crack and/or distort after compacting. The Examiner further asserts that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use first and second green sheets in Nishikawa as modified by Sato and Polinski having thermal coefficients of expansion below 8 ppm/K such that the coefficients of expansion of the green layers essentially match those of the additional layers within the multilayer, e.g. electrodes, metal foils, conductive paste, etc., thus preventing the additional layers from cracking or distorting as was well known in the art as shown for example by Lin.

Nishikawa describes a ceramic multilayer body with ceramic layers made of different ceramic materials. The different ceramic materials are characterized by different sintering temperatures. A metal paste consisting of Pd, Ag, Ag-Pd, Ag-Pt, Cu and Ag is used to integrate electric components. A paste of the oxide CuO is also specified. The specification of the oxide would not lead a person skilled in the art to use structured metal foils instead of the metal pastes.

Thus, the subject matter of the present invention is not made obvious by Nishikawa in combination with the specialized knowledge of the relevant person skilled in the art.

Sato is concerned *exclusively* with a body made of a ceramic and plastic composite. To produce the body, a single-layer, ceramic blank is sintered into a single-layer, porous ceramic body, which is subsequently impregnated with plastic. Following the production of the body made of the composite, metal foils made of copper are applied. Therefore, a joint sintering of the metal foils and a ceramic blank does not take place. This is also not possible because the plastic must be introduced into the pores of the ceramic body after sintering. As a result, a person skilled in the art, beginning with Nishikawa, would not consider the prior art according to Sato. Applicants respectfully submit that it would not have been obvious to modify Nishikawa to use, instead of a metal paste, an electrically conductive metal foil to produce the ceramic multilayer body in accordance with this invention.

Polinski is directed to ceramic multilayer substrates in which shrinkage at the level of individual ceramic layers is prevented during a sintering process. To this end, Polinski uses ceramic sacrificial layers that are removed after sintering. The ceramic sacrificial layers are designed to have the same sintering properties as the electric components that are integrated into the individual multilayer bodies. Based on Nishikawa, and taking into account the prior art according to Polinski, the relevant person skilled in the art will use electrode material that possesses the same shrinkage characteristics as one of the ceramic layers (or vice-versa). Moreover, the person skilled in the art would not consider using a structured metal foil to integrate electric components, as a result of the possible combination of Nishikawa and Polinski.

Lin relates to a ceramic multilayer substrate made of a glass ceramic material. The ceramic green foils used for this purpose are designed in such a way that the sintering temperature is as low as possible. The ceramic multilayer body is produced at a temperature of 850 °C to 950 °C in a one-step sintering process. This means that, in contrast to the claimed invention, a multistage sintering process is not provided. The multilayer substrate known from Lin is used, for example, as a carrier body for a silicone chip. For this reason, the thermal expansion coefficient of the substrate is adjusted to conform to the thermal expansion coefficients of silicone. A relatively broad range of between 3 and 8 ppm per °C is claimed for this purpose in Lin. However, because the entire ceramic multilayer body consists of one and the same ceramic material, it is not necessary to adjust

the thermal expansion coefficients of individual layers in the multilayer body to one another. Thus, the goal and solution in Lin differs significantly from the goal and solution of the claimed invention. As a result, one of ordinary skill in the art would not be motivated to combine the teachings of Lin with the other cited references to arrive at the claimed invention.


In conclusion, Applicants respectfully submit that it would not have been obvious to modify combine the cited references as cited by the Examiner and respectfully request that this rejection be withdrawn.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

In the event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, Applicants petition for any required relief including extensions of time and authorize the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. 449122019100.

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